

### **REMARKS**

This is a full and timely response to the non-final Office Action of November 28, 2007. Reexamination, reconsideration, and allowance of the application and all presently pending claims are respectfully requested.

Upon entry of this First Response, claims 1-30 remain pending in this application. Claims 1, 5-9, 12-16, 19, 20, 23, 27, and 28 are directly amended herein. It is believed that the foregoing amendments add no new matter to the present application.

### **Response to §103 Rejections**

In order for a claim to be properly rejected under 35 U.S.C. §103, the combined teachings of the prior art references must suggest all features of the claimed invention to one of ordinary skill in the art. See, e.g., *In Re Dow Chemical Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981). In addition, "(t)he PTO has the burden under section 103 to establish a *prima facie* case of obviousness." *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

## Claim 1

Claim 1 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau* (U.S. Patent No. 6,236,726). Claim 1, as amended, reads as follows:

1. A communication system, comprising:
  - at least one central office transceiver;
  - at least one intermediate terminal transceiver;
  - a feeder distribution interface coupled to the transceivers;
  - at least two customer transceivers coupled through the feeder distribution interface to the at least one central office transceiver and to the at least one intermediate terminal transceiver;
  - memory for storing data based on an estimated distance between the at least one central office transceiver and the feeder distribution interface and an estimated distance between the at least one intermediate terminal transceiver and the feeder distribution interface;*** and
  - logic configured to estimate a distance of a data path between the intermediate terminal transceiver and one of the customer transceivers, ***the logic further configured to adjust, based on the estimated distance and the data, a power output of the at least one intermediate terminal transceiver thereby ensuring that signals transmitted by the at least one intermediate terminal transceiver are spectrally compatible with signals transmitted by the at least one central office transceiver.*** (Emphasis added).

Applicants respectfully assert that the cited art fails to suggest at least the features of pending claim 1 highlighted hereinabove. Thus, the 35 U.S.C. §103 rejection of claim 1, as amended, is improper.

In this regard, it is alleged in the Office Action that *Darveau* teaches:

“estimating a distance of a data path between the intermediate terminal transceiver and one of the customer transceivers, the logic further configured to adjust (col. 2, lines 40-56), based on the estimated distance, a power output of the at least one intermediate terminal transceiver in order to maintain a specified performance margin of the at least one central office transceiver.”

Apparently, *Darveau* teaches that subscriber units in communication with a digital termination unit (DTU) at a central location adjust their transmission power levels so that all of the signals arriving at the DTU are received at approximately the same signal strength. In such a system, the far-end

termination point for each subscriber unit is co-located, and *Darveau* fails to suggest that the transmit power of any of the subscriber units should be based on an estimated distance for any of the other subscriber units. In this regard, each subscriber unit apparently estimates its own distance from the DTU and adjusts its power level such that its own signal arrives at the DTU at a desired signal strength. Having each of the subscriber units implementing this same algorithm results in all of the signals arriving at the DTU at approximately the same signal strength thereby reducing far-end crosstalk. In such a system, the operation of one subscriber unit does not appear to be dependent on the distance of another unit from the DTU. In this regard, the subscriber unit apparently adjusts its own transmission power level based on its own distance from the DTU regardless of the distances of the other subscriber units from the DTU.

The present invention, as defined by claim 1, is attempting to ensure spectral compatibility between signals transmitted from a central office and an intermediate terminal. For such signals, the endpoints at the far-end are not actually co-located, and the intermediate terminal transceivers may be located substantially closer to the feeder distribution interface relative to the central offices transceivers. Ensuring that each transmitted signal arrives at its far-end endpoint at the same signal strength, as taught by *Darveau*, does not necessarily ensure spectral compatibility. In fact, ensuring that each transmitted signal arrives at its far-end endpoint at the same signal strength may, in fact, **cause** spectral compatibility problems depending on the respective distances of the transceivers from the feeder distribution interface.

Moreover, for the system described by claim 1, ensuring spectral compatibility is based on the estimated distances of the intermediate terminal transceivers from the feeder distribution interface and the central office transceivers from the feeder distribution interface. Indeed, claim 1 has been amended herein to recite "memory for storing data based on an estimated distance between the at least one central office transceiver and the feeder distribution interface and an estimated distance of the at least one intermediate terminal transceiver and the feeder distribution

interface” and logic that uses such “data” to ensure spectral compatibility between the signals transmitted by the “at least one intermediate terminal transceiver” and the signals transmitted by the “at least one central office transceiver.” *Darveau* does not appear to suggest such “data” nor the use of such data to ensure spectral compatibility. Accordingly, the Office Action fails to establish a *prima facie* case of obviousness with respect to claim 1.

For at least the above reasons, Applicants respectfully assert that the alleged combination of the admitted prior art and *Darveau* is inadequate for suggesting each feature of claim 1, as amended. Accordingly, the 35 U.S.C. §103 rejection of claim 1 should be withdrawn.

#### **Claims 2-6**

Claims 2-6 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claims 2-6 contain all features of their respective independent claim 1. Since claim 1 should be allowed, as argued hereinabove, pending dependent claims 2-6 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### Claim 7

Claim 7 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 7, as amended, reads as follows:

7. A data communication system having central office transceivers residing at a central office and intermediate terminal transceivers residing at an intermediate terminal, the central office and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, comprising:

means for determining distances between the transceivers and the feeder distribution interface; and

***power reduction means for automatically reducing a transmission power of at least one of the intermediate terminal transceivers, based on the determined distances, in order to ensure that signals transmitted by the at least one intermediate terminal transceiver are spectrally compatible with signals transmitted by the central office transceivers.*** (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest ensuring spectral compatibility between signals transmitted from "at least one intermediate terminal transceiver" and signals transmitted from "central office transceivers," as recited by claim 7. Thus, the 35 U.S.C. §103 rejection of claim 7, as amended, is improper and should be withdrawn.

### Claim 8

Claim 8 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claim 8 contains all features of its independent claim 7. Since claim 7 should be allowed, as argued hereinabove, pending dependent claim 8 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### **Claim 9**

Claim 9 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 9, as amended, reads as follows:

9. A system for communicating between transceivers, comprising:  
a transmitter configured to transmit signals to a customer transceiver over a first communication connection that is bound within a binder;  
memory for storing data; and  
logic configured to estimate a distance of a data path between the transmitter and the customer transceiver based on at least one signal communicated over the data path, ***the logic further configured to adjust a transmission power level of the transmitter based on the estimated distance and the data thereby ensuring that signals transmitted by the transmitter to the customer transceiver are spectrally compatible with signals transmitted from another transceiver over a second communication connection that is bound within the binder, wherein the data is based on an estimated distance between the transmitter and a feeder distribution interface and a distance between the other transceiver and the feeder distribution interface.***  
(Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 9 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 9, as amended, is improper and should be withdrawn.

### **Claims 10-15**

Claims 10-15 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claims 10-15 contain all features of their respective independent claim 9. Since claim 9 should be allowed, as argued hereinabove, pending dependent claims 10-15 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### **Claim 16**

Claim 16 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 16, as amended, reads as follows:

16. A communication method, comprising the steps of:  
establishing a communication session between a first transceiver and a second transceiver;  
communicating, during a training phase of the communication session, at least one signal between the first and second transceivers over a first communication connection that is bound via a binder, the communicating step comprising the step of transmitting at least one signal from the first transceiver at a default power level;  
estimating a distance of a data path between the first and second transceivers based on at least one signal communicated in the communicating step;  
***adjusting a transmission power level for the first transceiver based on the estimated distance of the data path, an estimated distance between the first transceiver and a feeder distribution interface, and an estimated distance between the feeder distribution interface and another transceiver, such that signals transmitted by the first transceiver over the data path at the adjusted transmission power level are spectrally compatible with signals transmitted by the other transceiver over a second communication connection that is bound by the binder***; and  
transmitting at least one signal from the first transceiver at the adjusted transmission power level during a data phase of the communication session.  
(Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 16 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 16, as amended, is improper and should be withdrawn.

### Claims 17-19

Claims 17 and 18 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. In addition, claim 19 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over admitted prior art in view of *Darveau* and further in view of *Terry* (U.S. Patent No. 6,339,613). Applicants submit that the pending dependent claims 17-19 contain all features of their respective independent claim 16. Since claim 16 should be allowed, as argued hereinabove, pending dependent claims 17-19 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### Claim 20

Claim 20 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 20, as amended, reads as follows:

20. A method for providing spectrum management in a data communication system having central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

automatically determining at least one distance between the transceivers and the feeder distribution interface; and

***ensuring spectral compatibility between signals transmitted by the intermediate terminal transceivers and signals transmitted by the central office transceivers, the ensuring step comprising the step of automatically adjusting, based on the determined distance, a transmission power of at least one of the intermediate terminal transceivers.*** (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 7, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 20 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 20, as amended, is improper and should be withdrawn.



### Claims 21 and 22

Claims 21 and 22 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claims 21 and 22 contain all features of their respective independent claim 20. Since claim 20 should be allowed, as argued hereinabove, pending dependent claims 21 and 22 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### Claim 23

Claim 23 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 23, as amended, reads as follows:

23. A method of ensuring spectral compatibility in a data communication system having central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

***providing a table of power back-off values for adjusting transmission power levels of the intermediate terminal transceivers in order to ensure spectral compatibility between signals transmitted by the intermediate terminal transceivers and signals transmitted by the central office transceivers, wherein the power back-off values are functions of distances between the transceivers and the feeder distribution interface;***

automatically determining distances between the intermediate terminal transceivers and the customer transceivers based on signals communicated between the intermediate terminal transceivers and the customer transceivers; and

adjusting, based on the determined distances, the transmission power levels of the customer transceivers in accordance with the values in the table.

(Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 23

highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 23, as amended, is improper and should be withdrawn.

#### **Claim 24**

Claim 24 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claim 24 contains all features of its independent claim 23. Since claim 23 should be allowed, as argued hereinabove, pending dependent claim 24 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

#### **Claim 25**

Claim 25 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 25, as amended, reads as follows:

25. A method for reducing crosstalk in a data communication system having central office transceivers residing at a central office and intermediate terminal transceivers residing at an intermediate terminal, the central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

***storing values indicative of an approximate distance between the central office and the feeder distribution interface and of an approximate distance between the intermediate terminal and the feeder distribution interface;***

automatically determining values indicative of approximate distances between the intermediate terminal transceivers and the customer transceivers; and

reducing transmission power levels at all frequencies in the intermediate terminal transceivers in accordance with a power back-off algorithm, ***wherein the power back-off algorithm is responsive to the stored and determined values.***

(Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest "reducing transmission power

levels at all frequencies in the **intermediate terminal transceivers** in accordance with a power back-off algorithm, wherein the power back-off algorithm is **responsive to the stored** and determined **values**,” as recited by claim 25. (Emphasis added). Thus, the 35 U.S.C. §103 rejection of claim 25, as amended, is improper and should be withdrawn.

#### **Claim 26**

Claim 26 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claim 26 contains all features of its independent claim 25. Since claim 25 should be allowed, as argued hereinabove, pending dependent claim 26 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

#### **Claim 27**

Claim 27 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 27, as amended, reads as follows:

27. A communication method, comprising the steps of:  
transmitting a signal from at least one intermediate terminal transceiver through a cable to a customer transceiver, the cable coupled to a feeder distribution interface that is coupled to the at least one intermediate terminal transceiver and at least one central office transceiver, the cable propagating at least one signal transmitted from the at least one central office transceiver;  
**ensuring spectral compatibility between signals transmitted by the at least one intermediate terminal transceiver and signals transmitted by the at least one central office transceiver, the ensuring step comprising the step of automatically adjusting a power output of the at least one intermediate terminal;** and  
estimating a distance between the at least one intermediate terminal transceiver and the customer transceiver, wherein the adjusting is further based on the estimated distance. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 7, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 27 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 27, as amended, is improper and should be withdrawn.

### **Claims 29 and 30**

Claims 29 and 30 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claims 29 and 30 contain all features of their respective independent claim 27. Since claim 27 should be allowed, as argued hereinabove, pending dependent claims 29 and 30 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### **Allowable Subject Matter**

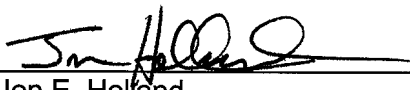
Claim 28 has been indicated as allowable by the outstanding Office Action if such claim is rewritten to include the limitations of its base claim 27. Accordingly, pending claim 28 has been amended herein to include the features of claim 27, and Applicants respectfully request that the objections to this claim be withdrawn.

### **CONCLUSION**

Applicants respectfully request that all outstanding objections and rejections be withdrawn and that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

Respectfully submitted,

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